

## REMARKS

Claim 29 has been amended. Claims 1-44 remain for further consideration. No new matter has been added.

The rejections shall be taken up in the order presented in the Official Action.

1. Entry of the Preliminary Amendment is noted and appreciated.
- 2-3. Claims 1, 21, 36 and 40 currently stand rejected for allegedly being anticipated by the subject matter disclosed in U.S. Patent 5,438,194 to Koudijis (hereinafter "Koudijis").

Claim 1 of the present invention recites a method of converting a non-gaseous sample for accelerator mass spectrometry analysis, which includes the steps of:

"converting desired elements present in the non-gaseous sample to a predetermined gaseous form; and  
transporting the predetermined gaseous form to an accelerator mass spectrometer ion source." (emphasis added, cl. 1).

Koudijis simply discloses the direct introduction of the sample into the ion source (see for example, col. 3, lines 40-46). This is in sharp contrast to the method of claim 1, which recites first converting the desired elements present in the non-gaseous sample to a predetermined gaseous form, and then transporting the predetermined gaseous form to an accelerator mass spectrometer ion source. As discussed in detail as admitted prior art in the "*Background of the Invention*" section of the present application, Koudijis discloses a system where a liquid or gas chromatograph is coupled directly to the ion source system of an AMS analyzer.

In related application serial number 09/935,909, the Office characterized Koudijis as failing to disclose:

*"...method of applying the sample to a solid substrate, converting desired elements present in the sample to a predetermined gaseous form for providing to a mass spectrometry ion source, or step of irradiating samples with a laser beam, or use of catalytic agents."* (emphasis added. Official Action, Serial No. 09/935,909, pages 3-4).

Accordingly, it has been previously admitted by the Office that Koudijis fails to disclose at least the step of converting desired elements present in the sample to a predetermined gaseous form.

A 35 U.S.C. §102 rejection requires that a single reference disclose each and every feature of the claimed invention. However, as set forth above, and as recognized by the Office in co-pending application Serial No. 09/935,909 Koudijis fails to disclose converting desired elements present in the non-gaseous sample to a predetermined gaseous form. Therefore, Koudijis is incapable of anticipating claim 1.

Claim 21 recites a method of converting a non-gaseous sample for processing that includes *"converting desired elements present in the sample to a predetermined gaseous form"* and then *"providing the predetermined gaseous form to an analytical processing device for processing"*, (emphasis added, cl. 21). As set forth in the preceding paragraph, Koudijis simply discloses coupling the sample directly to the ion source. Koudijis neither discloses nor suggests the step of first converting the desired elements in the sample to a predetermined gaseous form and then sending the predetermined gaseous form to an analytical processing device for processing. Accordingly, Koudijis is incapable claim 21.

Claim 36 recites a device for introducing a non-gaseous sample as a predetermined gaseous form into an analytical instrument. The device includes *"a converter that receives at least a portion*

*of said directed stream and converts the desired elements to the predetermined gaseous form*" (emphasis added, cl. 36). The system of claim 33 also includes a flow line that then transports the predetermined gaseous to the analytical instrument. This structure is in sharp contrast to the direct introduction of the sample to the ion source disclosed in Koudijis. As set forth above, in related co-pending application serial number 09/935,909, the Office characterized Koudijis as failing to disclose:

*"...method of applying the sample to a solid substrate, converting desired elements present in the sample to a predetermined gaseous form for providing to a mass spectrometry ion source, or step of irradiating samples with a laser beam, or use of catalytic agents."* (Official Action, Serial No. 09/935,909, pages 3-4).

Accordingly, it has been previously admitted by the Office that Koudijis fails to disclose converting desired elements present in the sample to a predetermined gaseous form. Accordingly, Koudijis is incapable of anticipating the device set forth in claim 36, which includes a converter that receives at least a portion of the directed stream and converts the desired elements to the predetermined gaseous form.

Claim 40 recites an interface for introducing a non-gaseous sample as a predetermined gaseous form into an accelerator mass spectrometer. The interface comprises *"a second stage that receives said separated sample stream, converts the desired elements in said sample stream to the predetermined gaseous form, and transports the predetermined gaseous form along a flow line to the accelerator mass spectrometer"* (emphasis added, cl. 40). This claimed structure does not introduce the sample directly into the ion source. That is, desired elements of the sample are first converted to a predetermined gaseous form and then the predetermined gaseous form is transported along a flow line to the accelerator mass spectrometer. Again, in contrast, Koudijis simply teaches the direct

introduction of the sample.

**5-8.** Claims 6-9, 10-20, 24, 26-35, 37-39 and 41-44 are currently rejected for allegedly being obvious in view of the combined subject matter disclosed in Koudijis, U.S. Patent 4,988,879 to Zare et al (hereinafter "Zare") and U.S. Patent 6,342,393 to Hofstadler et al (hereinafter "Hofstadler")

Claim 14 recites a method of converting a non-gaseous sample for processing that includes "*converting desired elements present in the nebulized sample to a predetermined gaseous form*" and then "*providing the predetermined gaseous form to an analytical processing device for analysis*". (emphasis added, cl. 14). As set forth above, Koudijis simply discloses coupling the sample directly to the ion source. Koudijis neither discloses nor suggests the step of first converting the desired elements in the sample to a predetermined gaseous form and then sending the predetermined gaseous form to the ion source. Hence, Koudijis is incapable of anticipating claim 14.


Claim 27 recites an interface for introducing a non-gaseous sample as a predetermined gaseous form into an accelerator mass spectrometer. The interface includes a "*a converter that receives at least a portion of said fine spray and converts the desired elements to the predetermined gaseous form*;" (cl. 27). However, as explained above and as admitted by the Office in related co-pending application serial number 09/935,909, Koudijis does not disclose such a converter. Claim 33 is patentable for at least the same reasons.

It is respectfully submitted that the obviousness rejection of the dependent claims is now moot, since those claims depend either directly or indirectly from independent claims that are patentable for at least the reasons set forth above.

For all the foregoing reasons, reconsideration and allowance of claims 1-44 is respectfully requested.

If a telephone interview could assist in the prosecution of this application, please call the undersigned attorney.

Respectfully submitted,

A handwritten signature in cursive script that reads "Patrick O'Shea". The signature is written in dark ink and is positioned above a horizontal line.

Patrick J. O'Shea  
Registration No. 35,305  
Samuels, Gauthier & Stevens LLP  
225 Franklin Street, Suite 3300  
Boston, Massachusetts 02110  
Telephone: (617) 426-9180 x121